Appendix 9
Additional Information

Appendix 9A
Project Coordinates

WONDERHEUVEL WEF: APPLICATION SITE

COORDINATES AT CORNER POINTS (DD MM SS.sss)

POINT	SOUTH	EAST
A	S31° 17' 1.287"	E24° 42' 4.865"
B	S31° 17' 20.791"	E24° 44' 9.956"
C	S31° 18' 52.051"	E24° 43' 59.011"
D	S31° 18' 51.516"	E24° 45' 40.385"
E	S31° 19' 24.462"	E24° 45' 44.745"
F	S31° 20' 29.169"	E24° 43' 58.727"
G	S31° 20' 23.791"	E24° 43' 37.331"
H	S31° 22' 16.277"	E24° 41' 19.097"
I	S31° 23' 14.558"	E24° 40' 23.671"
J	S31° 23' 1.162"	E24° 39' 53.952"
K	S31° 23' 15.310"	E24° 38' 49.721"
L	S31° 20' 20.615"	E24° 39' 26.979"
M	S31° 20' 4.494"	E24° 40' 19.428"
COORDINATES AT CENTRE POINT (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**

WONDERHEUVEL SEF: PV ARRAY 1

TOTAL AREA (HECTARES): 190.14

COORDINATES AT CENTRE POINT (DD MM SS.sss)	
SOUTH	**EAST**
S31° 19' 20.917"	E24° 42' 27.573"

COORDINATES AT CORNER POINTS (DD MM SS.sss)			COORDINATES AT CORNER POINTS (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**	**POINT**	**SOUTH**	**EAST**
PV1_001	S31° 18' 58.566"	E24° 42' 38.262"	PV1_009	S31° 19' 25.015"	E24° 41' 50.107"
PV1_002	S31° 18' 59.344"	E24° 43' 21.998"	PV1_010	S31° 19' 15.797"	E24° 41' 50.331"
PV1_003	S31° 19' 5.465"	E24° 43' 21.732"	PV1_011	S31° 19' 15.888"	E24° 41' 55.396"
PV1_004	S31° 19' 46.837"	E24° 41' 54.184"	PV1_012	S31° 19' 7.018"	E24° 41' 55.612"
PV1_005	S31° 19' 46.594"	E24° 41' 40.663"	PV1_013	S31° 19' 7.330"	E24° 42' 13.034"
PV1_006	S31° 19' 33.376"	E24° 41' 40.985"	PV1_014	S31° 19' 4.374"	E24° 42' 13.106"
PV1_007	S31° 19' 33.453"	E24° 41' 45.240"	PV1_015	S31° 19' 5.299"	E24° 42' 37.904"
PV1_008	S31° 19' 24.931"	E24° 41' 45.447"			

WONDERHEUVEL SEF: PV ARRAY 2

TOTAL AREA (HECTARES): 154.64

COORDINATES AT CENTRE POINT (DD MM SS.sss)	
SOUTH	**EAST**
S31° 19' 35.099"	E24° 42' 50.975"

COORDINATES AT CORNER POINTS (DD MM SS.sss)			COORDINATES AT CORNER POINTS (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**	**POINT**	**SOUTH**	**EAST**
PV2_001	S31° 19' 9.164"	E24° 43' 29.749"	PV2_008	S31° 19' 53.617"	E24° 42' 52.248"
PV2_002	S31° 19' 50.053"	E24° 43' 27.798"	PV2_009	S31° 19' 53.270"	E24° 42' 32.797"
PV2_003	S31° 19' 49.963"	E24° 43' 22.741"	PV2_010	S31° 19' 55.878"	E24° 42' 32.733"
PV2_004	S31° 19' 53.287"	E24° 43' 22.661"	PV2_011	S31° 19' 55.534"	E24° 42' 13.485"
PV2_005	S31° 19' 53.161"	E24° 43' 15.569"	PV2_012	S31° 19' 51.360"	E24° 42' 13.586"
PV2_006	S31° 19' 47.248"	E24° 43' 15.712"	PV2_013	S31° 19' 51.121"	E24° 42' 0.248"
PV2_007	S31° 19' 46.834"	E24° 42' 52.412"			

WONDERHEUVEL SEF: PV ARRAY 3

TOTAL AREA (HECTARES): 142.39

COORDINATES AT CENTRE POINT (DD MM SS.sss)	
SOUTH	**EAST**
S31° 20' 14.911"	E24° 42' 26.343"

COORDINATES AT CORNER POINTS (DD MM SS.sss)			COORDINATES AT CORNER POINTS (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**	**POINT**	**SOUTH**	**EAST**
PV3_001	S31° 19' 58.892"	E24° 41' 47.595"	PV3_009	S31° 20' 23.885"	E24° 43' 15.678"
PV3_002	S31° 19' 59.488"	E24° 42' 5.273"	PV3_010	S31° 20' 23.747"	E24° 43' 7.932"
PV3_003	S31° 20' 5.227"	E24° 42' 5.134"	PV3_011	S31° 20' 26.704"	E24° 43' 7.861"
PV3_004	S31° 20' 6.218"	E24° 43' 0.652"	PV3_012	S31° 20' 26.567"	E24° 43' 0.160"
PV3_005	S31° 20' 16.479"	E24° 43' 0.404"	PV3_013	S31° 20' 29.150"	E24° 43' 0.098"
PV3_006	S31° 20' 16.678"	E24° 43' 17.542"	PV3_014	S31° 20' 28.066"	E24° 41' 59.452"
PV3_007	S31° 20' 20.678"	E24° 43' 17.446"	PV3_015	S31° 20' 8.304"	E24° 41' 59.933"
PV3_008	S31° 20' 20.754"	E24° 43' 15.753"	PV3_016	S31° 20' 7.791"	E24° 41' 31.338"

WONDERHEUVEL SEF: PV ARRAY 4

TOTAL AREA (HECTARES): 45.22

COORDINATES AT CENTRE POINT (DD MM SS.sss)	
SOUTH	**EAST**
S31° 19' 58.191"	E24° 41' 1.625"

COORDINATES AT CORNER POINTS (DD MM SS.sss)			COORDINATES AT CORNER POINTS (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**	**POINT**	**SOUTH**	**EAST**
PV4_001	S31° 19' 51.762"	E24° 40' 37.061"	PV4_008	S31° 20' 3.206"	E24° 40' 52.802"
PV4_002	S31° 19' 53.347"	E24° 41' 28.864"	PV4_009	S31° 20' 0.738"	E24° 40' 52.862"
PV4_003	S31° 19' 56.182"	E24° 41' 28.623"	PV4_010	S31° 20' 0.371"	E24° 40' 32.535"
PV4_004	S31° 20' 3.441"	E24° 41' 25.191"	PV4_011	S31° 19' 56.758"	E24° 40' 32.624"
PV4_005	S31° 20' 5.315"	E24° 41' 21.730"	PV4_012	S31° 19' 56.800"	E24° 40' 34.985"
PV4_006	S31° 20' 5.070"	E24° 41' 8.162"	PV4_013	S31° 19' 52.571"	E24° 40' 35.089"
PV4_007	S31° 20' 3.484"	E24° 41' 8.201"	PV4_014	S31° 19' 52.606"	E24° 40' 37.040"

WONDERHEUVEL SEF: PV ARRAY 5

TOTAL AREA (HECTARES): 165.71

COORDINATES AT CENTRE POINT (DD MM SS.sss)	
SOUTH	**EAST**
S31° 21' 11.854"	E24° 39' 50.368"

COORDINATES AT CORNER POINTS (DD MM SS.sss)			COORDINATES AT CORNER POINTS (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**	**POINT**	**SOUTH**	**EAST**
PV5_001	S31° 20' 42.698"	E24° 39' 34.983"	PV5_007	S31° 21' 39.980"	E24° 40' 14.821"
PV5_002	S31° 20' 42.994"	E24° 39' 46.585"	PV5_008	S31° 21' 38.220"	E24° 39' 34.929"
PV5_003	S31° 20' 46.583"	E24° 39' 46.496"	PV5_009	S31° 21' 18.561"	E24° 39' 35.220"
PV5_004	S31° 20' 46.998"	E24° 40' 9.255"	PV5_010	S31° 21' 18.315"	E24° 39' 25.903"
PV5_005	S31° 21' 29.995"	E24° 40' 7.801"	PV5_011	S31° 20' 58.686"	E24° 39' 26.390"
PV5_006	S31° 21' 30.461"	E24° 40' 14.939"	PV5_012	S31° 20' 58.831"	E24° 39' 34.143"

WONDERHEUVEL SEF: PV ARRAY 6

TOTAL AREA (HECTARES): 164.25

COORDINATES AT CENTRE POINT (DD MM SS.sss)	
SOUTH	**EAST**
S31° 21' 21.094"	E24° 41' 29.433"

COORDINATES AT CORNER POINTS (DD MM SS.sss)			COORDINATES AT CORNER POINTS (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**	**POINT**	**SOUTH**	**EAST**
PV6_001	S31° 20' 53.472"	E24° 41' 17.631"	PV6_023	S31° 21' 21.928"	E24° 41' 17.393"
PV6_002	S31° 20' 54.051"	E24° 41' 49.009"	PV6_024	S31° 21' 21.963"	E24° 41' 19.348"
PV6_003	S31° 21' 2.797"	E24° 41' 48.798"	PV6_025	S31° 21' 23.947"	E24° 41' 19.301"
PV6_004	S31° 21' 3.004"	E24° 42' 0.360"	PV6_026	S31° 21' 23.991"	E24° 41' 21.432"
PV6_005	S31° 21' 22.282"	E24° 41' 59.891"	PV6_027	S31° 21' 29.616"	E24° 41' 21.059"
PV6_006	S31° 21' 22.128"	E24° 41' 51.301"	PV6_028	S31° 21' 33.311"	E24° 41' 22.864"
PV6_007	S31° 21' 29.782"	E24° 41' 51.115"	PV6_029	S31° 21' 36.930"	E24° 41' 22.778"
PV6_008	S31° 21' 29.616"	E24° 41' 41.865"	PV6_030	S31° 21' 24.205"	E24° 41' 31.421"
PV6_009	S31° 21' 37.270"	E24° 41' 41.678"	PV6_031	S31° 21' 24.077"	E24° 41' 25.916"
PV6_010	S31° 21' 37.080"	E24° 41' 31.106"	PV6_032	S31° 21' 20.425"	E24° 41' 25.327"
PV6_011	S31° 21' 45.868"	E24° 41' 30.891"	PV6_033	S31° 21' 17.889"	E24° 41' 24.534"
PV6_012	S31° 21' 45.755"	E24° 41' 24.614"	PV6_034	S31° 21' 11.962"	E24° 41' 24.704"
PV6_013	S31° 21' 51.709"	E24° 41' 24.468"	PV6_035	S31° 21' 7.835"	E24° 41' 23.366"
PV6_014	S31° 21' 51.470"	E24° 41' 11.253"	PV6_036	S31° 21' 6.635"	E24° 41' 24.371"
PV6_015	S31° 21' 44.099"	E24° 41' 11.433"	PV6_037	S31° 21' 5.847"	E24° 41' 27.279"
PV6_016	S31° 21' 43.968"	E24° 41' 4.165"	PV6_038	S31° 21' 5.993"	E24° 41' 35.664"
PV6_017	S31° 21' 26.675"	E24° 41' 4.589"	PV6_039	S31° 21' 3.724"	E24° 41' 35.692"

PV6_018	S31° 21' 26.598"	E24° 41' 0.295"	PV6_040	S31° 21' 2.018"	E24° 41' 31.462"
PV6_019	S31° 21' 3.635"	E24° 41' 0.858"	PV6_041	S31° 21' 1.572"	E24° 41' 25.322"
PV6_020	S31° 21' 3.893"	E24° 41' 15.186"	PV6_042	S31° 21' 0.547"	E24° 41' 21.918"
PV6_021	S31° 21' 10.088"	E24° 41' 16.413"	PV6_043	S31° 20' 57.643"	E24° 41' 17.529"
PV6_022	S31° 21' 12.256"	E24° 41' 17.621"			

WONDERHEUVEL SEF

SUBSTATION SITE COORDINATES (DD MM SS.sss)

SUBSTATION 3a

COORDINATES AT CENTRE POINT (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
CENTRE	S31° 20' 16.472"	E24° 43' 21.493"
COORDINATES AT CORNER POINTS (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
SUB3a_01	S31° 20' 13.197"	E24° 43' 17.743"
SUB3a_02	S31° 20' 13.332"	E24° 43' 25.398"
SUB3a_03	S31° 20' 19.748"	E24° 43' 25.243"
SUB3a_04	S31° 20' 19.612"	E24° 43' 17.588"

SUBSTATION 3b

COORDINATES AT CENTRE POINT (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
CENTRE	S31° 19' 30.350"	E24° 43' 32.719"
COORDINATES AT CORNER POINTS (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
SUB3b_01	S31° 19' 27.074"	E24° 43' 28.969"
SUB3b_02	S31° 19' 27.210"	E24° 43' 36.623"
SUB3b_03	S31° 19' 33.626"	E24° 43' 36.468"
SUB3b_04	S31° 19' 33.490"	E24° 43' 28.814"

SUBSTATION 4a (CENTRAL COLLECTOR)

COORDINATES AT CENTRE POINT (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
CENTRE	S31° 21' 33.146"	E24° 41' 45.812"
COORDINATES AT CORNER POINTS (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
SUB4a_01	S31° 21' 29.869"	E24° 41' 42.062"
SUB4a_02	S31° 21' 30.007"	E24° 41' 49.718"
SUB4a_03	S31° 21' 36.422"	E24° 41' 49.562"
SUB4a_04	S31° 21' 36.285"	E24° 41' 41.905"

SUBSTATION 4b

COORDINATES AT CENTRE POINT (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
CENTRE	S31° 21' 43.261"	E24° 40' 17.189"
COORDINATES AT CORNER POINTS (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
SUB4b_01	S31° 21' 39.983"	E24° 40' 13.440"
SUB4b_02	S31° 21' 40.122"	E24° 40' 21.096"
SUB4b_03	S31° 21' 46.538"	E24° 40' 20.938"
SUB4b_04	S31° 21' 46.399"	E24° 40' 13.282"

WONDERHEUVEL SEF

LAYDOOWN AREA COORDINATES (DD MM SS.sss)

LAYDOWN OPTION 1

COORDINATES AT CENTRE POINT (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
CENTRE	S31° 19' 36.807"	E24° 43' 32.563"
COORDINATES AT CORNER POINTS (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
LD1_01	S31° 19' 33.531"	E24° 43' 28.813"
LD1_02	S31° 19' 33.667"	E24° 43' 36.467"
LD1_03	S31° 19' 40.082"	E24° 43' 36.313"
LD1_04	S31° 19' 39.947"	E24° 43' 28.658"

LAYDOWN OPTION 2

COORDINATES AT CENTRE POINT (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
CENTRE	S31° 20' 13.037"	E24° 43' 4.878"
COORDINATES AT CORNER POINTS (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
LD2_01	S31° 20' 9.761"	E24° 43' 1.128"
LD2_02	S31° 20' 9.897"	E24° 43' 8.782"
LD2_03	S31° 20' 16.313"	E24° 43' 8.628"
LD2_04	S31° 20' 16.177"	E24° 43' 0.973"

LAYDOWN OPTION 3

COORDINATES AT CENTRE POINT (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
CENTRE	S31° 21' 40.508"	E24° 41' 35.043"
COORDINATES AT CORNER POINTS (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
LD3_01	S31° 21' 37.231"	E24° 41' 31.293"
LD3_02	S31° 21' 37.369"	E24° 41' 38.949"
LD3_03	S31° 21' 43.784"	E24° 41' 38.793"
LD3_04	S31° 21' 43.646"	E24° 41' 31.136"

LAYDOWN OPTION 4

COORDINATES AT CENTRE POINT (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
CENTRE	S31° 21' 43.054"	E24° 40' 9.335"
COORDINATES AT CORNER POINTS (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
LD4_01	S31° 21' 39.777"	E24° 40' 5.586"
LD4_02	S31° 21' 39.916"	E24° 40' 13.242"
LD4_03	S31° 21' 46.331"	E24° 40' 13.084"
LD4_04	S31° 21' 46.192"	E24° 40' 5.427"

LAYDOWN OPTION 5

LAYDOWN OPTION 6

WONDERHEUVEL SEF

LAYDOOWN AREA COORDINATES (DD MM SS.sss)

COORDINATES AT CENTRE POINT (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
CENTRE	S31° 20' 11.162"	E24° 41' 38.228"
COORDINATES AT CORNER POINTS (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
LD5_01	S31° 20' 7.848"	E24° 41' 34.526"
LD5_02	S31° 20' 7.984"	E24° 41' 42.090"
LD5_03	S31° 20' 14.476"	E24° 41' 41.931"
LD5_04	S31° 20' 14.340"	E24° 41' 34.367"

COORDINATES AT CENTRE POINT (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
CENTRE	S31° 19' 31.064"	E24° 41' 34.167"
COORDINATES AT CORNER POINTS (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
LD6_01	S31° 19' 27.808"	E24° 41' 30.396"
LD6_02	S31° 19' 27.826"	E24° 41' 37.960"
LD6_03	S31° 19' 34.320"	E24° 41' 37.939"
LD6_04	S31° 19' 34.302"	E24° 41' 30.375"

LAYDOWN OPTION 7

COORDINATES AT CENTRE POINT (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
CENTRE	S31° 21' 40.654"	E24° 41' 0.462"
COORDINATES AT CORNER POINTS (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
LD7_01	S31° 21' 37.339"	E24° 40' 56.759"
LD7_02	S31° 21' 37.476"	E24° 41' 4.324"
LD7_03	S31° 21' 43.968"	E24° 41' 4.165"
LD7_04	S31° 21' 43.832"	E24° 40' 56.599"

LAYDOWN OPTION 8

COORDINATES AT CENTRE POINT (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
CENTRE	S31° 20' 43.545"	E24° 39' 57.995"
COORDINATES AT CORNER POINTS (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
LD8_01	S31° 20' 46.723"	E24° 39' 54.132"
LD8_02	S31° 20' 40.230"	E24° 39' 54.293"
LD8_03	S31° 20' 40.368"	E24° 40' 1.857"
LD8_04	S31° 20' 46.860"	E24° 40' 1.697"

WONDERHEUVEL SEF

O&M SITE COORDINATES (DD MM SS.sss)

O&M SITE OPTION 1

COORDINATES AT CENTRE POINT (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
CENTRE	S31° 19' 41.995"	E24° 43' 30.157"
COORDINATES AT CORNER POINTS (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
OM1_01	S31° 19' 39.995"	E24° 43' 28.583"
OM1_02	S31° 19' 40.053"	E24° 43' 31.825"
OM1_03	S31° 19' 43.995"	E24° 43' 31.730"
OM1_04	S31° 19' 43.938"	E24° 43' 28.488"

O&M SITE OPTION 2

COORDINATES AT CENTRE POINT (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
CENTRE	S31° 20' 14.267"	E24° 43' 10.508"
COORDINATES AT CORNER POINTS (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
OM2_01	S31° 20' 12.267"	E24° 43' 8.934"
OM2_02	S31° 20' 12.324"	E24° 43' 12.176"
OM2_03	S31° 20' 16.266"	E24° 43' 12.081"
OM2_04	S31° 20' 16.209"	E24° 43' 8.839"

O&M SITE OPTION 3

COORDINATES AT CENTRE POINT (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
CENTRE	S31° 21' 25.092"	E24° 41' 53.415"
COORDINATES AT CORNER POINTS (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
OM3_01	S31° 21' 23.092"	E24° 41' 51.841"
OM3_02	S31° 21' 23.150"	E24° 41' 55.084"
OM3_03	S31° 21' 27.092"	E24° 41' 54.988"
OM3_04	S31° 21' 27.034"	E24° 41' 51.745"

O&M SITE OPTION 4

COORDINATES AT CENTRE POINT (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
CENTRE	S31° 21' 37.048"	E24° 40' 17.009"
COORDINATES AT CORNER POINTS (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
OM4_01	S31° 21' 35.048"	E24° 40' 15.437"
OM4_02	S31° 21' 35.107"	E24° 40' 18.679"
OM4_03	S31° 21' 39.049"	E24° 40' 18.582"
OM4_04	S31° 21' 38.990"	E24° 40' 15.339"

O&M SITE OPTION 5

O&M SITE OPTION 6

WONDERHEUVEL SEF

O&M SITE COORDINATES (DD MM SS.sss)

COORDINATES AT CENTRE POINT (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
CENTRE	S31° 20' 15.761"	E24° 41' 36.603"
COORDINATES AT CORNER POINTS (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
OM5_01	S31° 20' 14.340"	E24° 41' 34.367"
OM5_02	S31° 20' 14.422"	E24° 41' 38.906"
OM5_03	S31° 20' 17.181"	E24° 41' 38.838"
OM5_04	S31° 20' 17.099"	E24° 41' 34.300"

COORDINATES AT CENTRE POINT (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
CENTRE	S31° 19' 26.441"	E24° 41' 35.695"
COORDINATES AT CORNER POINTS (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
OM6_01	S31° 19' 25.055"	E24° 41' 33.430"
OM6_02	S31° 19' 25.066"	E24° 41' 37.969"
OM6_03	S31° 19' 27.826"	E24° 41' 37.960"
OM6_04	S31° 19' 27.815"	E24° 41' 33.422"

O&M SITE OPTION 7

COORDINATES AT CENTRE POINT (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
CENTRE	S31° 21' 45.438"	E24° 41' 9.130"
COORDINATES AT CORNER POINTS (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
OM7_01	S31° 21' 44.018"	E24° 41' 6.894"
OM7_02	S31° 21' 44.099"	E24° 41' 11.433"
OM7_03	S31° 21' 46.859"	E24° 41' 11.366"
OM7_04	S31° 21' 46.777"	E24° 41' 6.826"

O&M SITE OPTION 8

COORDINATES AT CENTRE POINT (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
CENTRE	S31° 20' 44.942"	E24° 40' 3.352"
COORDINATES AT CORNER POINTS (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
OM8_01	S31° 20' 46.860"	E24° 40' 1.697"
OM8_02	S31° 20' 42.965"	E24° 40' 1.793"
OM8_03	S31° 20' 43.023"	E24° 40' 5.008"
OM8_04	S31° 20' 46.919"	E24° 40' 4.912"

WONDERHEUVEL SEF

INTERNAL ROAD COORDINATES (DD MM SS.sss)

ROAD 1

APPROX LENGTH (KM): 12.27

CENTRE LINE COORDINATES		
POINT	**SOUTH**	**EAST**
START	S31° 18' 51.551"	E24° 45' 33.811"
MID POINT	S31° 20' 49.959"	E24° 42' 51.426"
END	S31° 23' 13.079"	E24° 40' 20.273"

ROAD 2

APPROX LENGTH (KM): 5.15

COORDINATES AT CENTRE POINT (DD MM SS.sss)		
POINT	**SOUTH**	**EAST**
START	S31° 18' 56.785"	E24° 43' 48.815"
MID POINT	S31° 19' 2.512"	E24° 42' 17.731"
END	S31° 20' 7.591"	E24° 41' 24.249"

Appendix 9B
DEA Pre-App Meeting Minutes

SiVEST Environmental
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Established 1952

PROJECT NAME: ENVIRONMENTAL IMPACT ASSESSMENTS (EIAs) FOR THE PROPOSED DEVELOPMENT OF THE UMSOBOMVU SOLAR PHOTOVOLTAIC (PV) FACILITIES AND ASSOCIATED GRID INFRASTRUCTURE NEAR NOUPOORT AND MIDDELBURG IN THE EASTERN AND NORTHERN CAPE PROVINCES

PRE-APP MEETING REF NO.: 2018-12-0003

PROJECT NO: 15324

DESCRIPTION: PRE-APPLCIATION MEETING WITH DEPARTMENT OF ENVIRONMENTAL AFFAIRS (DEA)

VENUE: ENVIRONMENT HOUSE, 473 STEVE BI O ROAD, ARCADIA, PRETORIA

DATE AND TIME: TUESDAY, 19 FEBRUARY 2019 AT 10H00

Representative	Company / Designation	ID	Tel	Email
Andrea Gibb	SiVEST SA (Pty) Ltd (SiVEST) – Divisional Manager	AG	011 798 0600	andreag sivest.co. a
Stephan acobs	SiVEST – Environmental Consultant	S	011 798 0600	stephanj sivest.co. a
Sheldon Vandrey	EDF Renewables (Pty) Ltd (EDF) – Development Project Manager	SV	041 506 4900	sheldon.vandrey edf-re.co. a
Muhammad Essop	Department of Environmental Affairs (DEA) – Assistant Director: Strategic Infrastructure Developments	ME	012 399 9406	messop environment.gov. a
Coenrad Agenbach	DEA – Deputy Director: Integrated Environmental Authorisations	CA	012 399 9403	cagenbach environment.gov. a
Thabile Sangweni	DEA – Reviewer	TS	012 399 9409	tsangweni environment.gov. a
Mmamohale abasa	DEA – Reviewer	M	012 399 9420	mkabasa environment.gov. a
Pfano Nengud a	DEA – Learner	PN	012 399 8985	pnengud a environment.gov. a

APOLOGIES:
None

FINAL MEETING MINUTES:

ITEM NO.	ITEM DESCRIPTION	ACTION
Introduction		
1.	All representatives from SiVEST (appointed environmental assessment practitioner - EAP), the DEA and EDF (the applicant) introduced themselves.	N/A
2.	S provided an overview of the project, including the grid connection infrastructure alternatives and the location. It was noted that EDF are proposing to develop three (3) adjacent solar photovoltaic (PV) facilities, compromising of two (2) PV arrays each. The location of the proposed facilities and the grid infrastructure were presented and it was explained that two (2) of the solar PV facilities (Mooi Plaats and Wonderheuvel) are located	N/A

ITEM NO.	ITEM DESCRIPTION	ACTION
	within the Umsobomvu Local Municipality in the Northern Cape near Noupoort and one (1) of the proposed solar PV facilities is located within the Inxuba Yethemba Local Municipality in the Eastern Cape near Middelburg. The grid infrastructure alternatives traverse both the Northern and Eastern Cape Provinces.	
Solar PV Facilities		
3.	S noted that the intended process is to submit three (3) applications - one for each PV facility covering 2 x PV arrays and associated grid infrastructure. Post environmental authorisation (EA) the intention would be to split the grid infrastructure from the solar PV facilities (to allow hand over to Eskom) and separate each solar PV project into two (2) PV facilities.	N/A
4.	SV added that EDF intend to have three (3) projects ready for the REIPPPP round 6 Bid window and each solar PV project would be split (after the round 6 bid window) to allow for a further three (3) projects to be Bid in round 7.	N/A
5.	ME questioned the intended process and suggested that six (6) applications should be made for the solar PV projects. He added that if three (3) applications were submitted they would be reviewed in their entirety and therefore if environmental issues are identified for part of the project this would influence the entire application and EA could be refused The same issue would occur if there was an appeal or objection related to part of the project.	N/A
6.	ME explained that a Part 2 Amendment would be required to split the projects and that this is a 197-day process that take over six (6) months to complete. The process results in duplication as additional reports need to be compiled and made available for public review and comment. This process will also put the project at risk as an appeal against the amendment application decision would suspend the EA. The appeal process takes a minimum of ninety (90) days, which could prevent the projects from reaching financial close.	N/A
7.	CA added that Part 2 Amendment processes required to split projects into various components are complicated processes that require additional public participation and could result in appeals.	N/A
8.	SV noted that the suggested approach of six (6) applications for the solar PV facilities and confirmed that he would take this recommendation forward to the management at EDF.	SV
9.	S noted that the proposed application sites for the Mooi Plaats and Wonderheuvel solar PV facilities traverse the same farm portion i.e. Remainder of the Farm Mooi Plaats No. 121. This is being proposed as the PV development area will be determined based on the onsite environmentally sensitive areas which are still to be determined during the EIA process. The DEA was requested to confirm whether this approach would be acceptable.	N/A
10.	ME noted that the same farm (Farm Mooi Plaats No. 121) can be included in both applications provided that the PV development footprints and alternatives assessed for each project do not overlap.	N/A
11.	CA suggested that specialist should proceed to assess the application sites but that the application forms should only be submitted once the viability of the site and all sensitive areas are understood.	SiVEST
12.	ME confirmed that for solar PV projects a Final Layout Plan and a Final Environmental Management Programmes (EMPr) should be submitted to the DEA for approval within the Final Environmental Impact Assessment Report (FEIAr).	SiVEST
Grid Connection Infrastructure		
13.	TS requested that the grid infrastructure alternatives be explained.	N/A
14.	S presented and explained the grid infrastructure alternatives.	N/A
15.	ME noted that the sharing of substations should be carefully worded and explained. As only one collector substation will ultimately be constructed, although more than one will be	SiVEST / DEA

ITEM NO.	ITEM DESCRIPTION	ACTION
	assessed and potentially authorised, the EA will need to note that once the collector substation is built it will invalidate the authorisations for all other collector substations.	
16.	CA questioned the status of Hydra D Main Transmission Substation (MTS).	N/A
17.	SV noted that according to Eskom Hydra D MTS is scheduled to be constructed in 2021. He further noted that if EDF are preferred bidders they will construct Hydra D and they have the funds available to do so.	N/A
18.	CA queried if none of the proposed substations (i.e. Phe ukhomoya, Hydra D, Central Collector) have been constructed.	N/A
19.	SV confirmed that none of the proposed substations have been constructed.	N/A
20.	ME noted that the grid infrastructure should be assessed as separate Basic Assessment (BA) process, and the required portion of the authorised power line could be constructed in part to service one or more of the solar PV projects if awarded preferred bidder status and constructed. However, ideally three (3) BA processes should be undertaken for the grid infrastructure.	N/A
22.	AG suggested that as the grid infrastructure EAs will be handed over to Eskom for operation, the solar PV projects should also assess and include any infrastructure that may be required to be constructed following hand over of the Grid EA to Eskom.	N/A
Public Participation Process		
23.	ME recommended that each Special Purpose Vehicle (SPV) should provide a comment letter noting that it is not opposed to the PV project proposed by another SPV or the associated grid infrastructure should it traverse the SPVs application site. This will avoid later appeals should one or more of the projects be sold to different independent power producers (IPPs).	EDF
24.	S requested confirmation as to whether a combined public participation process (PPP) can be undertaken, with specific organs of state targeted per province and project specific landowner consent.	N/A
25.	ME confirmed that a combined PPP can be undertaken with specific activities as proposed. It must be ensured that the correct provincial authorities are included in the PPP.	SiVEST
	ME noted that if the grid connection infrastructure is not separated out as a separate BA/s, landowner consent will also be required from all landowners directly affected by the grid infrastructure alternatives, as majority of the project would not be a linear activity.	N/A
26.	CA noted that reasonable steps need to be taken to notify and prove that occupiers of affected properties have been notified and proof should be included within the draft and final reports.	SiVEST
Specialist Studies		
27.	S indicated the specialist studies proposed and requested confirmed that all studies have been included and if the DEA has any suggestions.	N/A
	The DEA confirmed that they are in agreement with the suggested studies.	N/A
28.	ME stated that all reports should include a detailed cumulative impact assessment which meets all the DEAs requirements.	SiVEST
29.	TS noted that the Avifaunal specialist should walk the existing power lines routes.	SiVEST
30.	ME noted that Department of Agriculture, Forestry and Fisheries (DAFF) may request that a detailed Agricultural Potential and Soil Impact Assessment by undertaken if they identify that the area has a high agricultural potential.	N/A
31.	ME noted that any deviation from the Birdlife South Africa (BLSA) Guidelines should be motivated, however undertaking an assessment in the incorrect season will not be considered to be an acceptable deviation. All specialists should ensure that their assessments are undertaken in the correct season.	N/A
33.	ME confirmed that the specialists can compile one (1) combined report covering the proposed solar PV projects and grid infrastructure, provided the findings and impact assessment	SiVEST

ITEM NO.	ITEM DESCRIPTION	ACTION
	sections are project specific. The reports should not be generalised but should provide specific results for each project.	
	ME noted that all studies should be based on the worst case scenario. For example the visual assessment should be based on the tallest possible PV panels.	SiVEST
34.	S noted that an ecological (fauna and flora) assessment is being undertaken and will investigate the potential impacts of the project on Critical Biodiversity Areas (CBAs) as the proposed project traverses CBA 1 and CBA 2 areas.	N/A
35.	ME noted that in terms of CBAs the Draft National Biodiversity Offset Policy should be consulted. Developing within a CBA will require an offset and the DEA will not accept financial offsets.	SiVEST
32.	The Transportation Impact Assessment should suggest the best way to access the site and the South African National Roads Agency Limited (SANRAL) should be engaged with.	SiVEST
General		
34.	CA noted that all legislated timeframes should be adhered to in order to prevent the applications from lapsing.	SiVEST
34.	Draft and final reports should be submitted as one (1) colour hard copy and one (1) USB electronic copy. In addition, the DEA Biodiversity Directorate should be contacted to find out how many copies they require. All submissions should clearly be addressed to the correct official.	SiVEST
Post Meeting Notes and Way Forward		
35.	Following the pre-application meeting SV communicated the outcome of the meeting to the management at EDF. AG also consulted with CA and ME from the DEA and based the discussions, the proposed way forward for the solar PV facilities and associated grid infrastructure is as follows: ▪ Undertake three (3) EIAs – one (1) for each solar PV facility. ▪ Undertake three (3) BAs – one (1) for each associated grid infrastructure connection. ▪ Each specialist will compile one (1) combined report that assesses all three (3) solar PV facilities and all three (3) associated grid connection infrastructure options. The reports will include separate impact ratings and assessments for each project. ▪ The specialists will assess the entire application sites during the scoping phase, identify on-site sensitive and no-go areas. ▪ The layout and maximum output capacity for each solar PV facility will be determined based on the environmentally sensitive and no-go areas identified by the specialists. ▪ The proposed layout and alternatives will be presented in the scoping reports and will be put forward for further investigation in the EIA phase. ▪ The Remainder of the Farm Mooi Plaats No. 121 will be included in the application sites for both Mooi Plaats and Wonderheuvel solar PV facilities, however the development footprints and alternatives will not overlap. ▪ A combined PPP will be undertaken for all six (6) applications (3x EIAs and 3x BAs), with specific organs of state targeted per province and project specific landowner consent obtained. ▪ The three (3) BA processes for the grid connection infrastructure will be initiated once the final scoping report (FSR) has been accepted by the DEA.	SiVEST / EDF
36.	Comments on the Draft minutes were received by 25 une 2019 and the minutes were thereafter finalised and distributed.	ALL

Stephan Jacobs

From: Andrea Gibb
Sent: Thursday, 27 June 2019 3:18 PM
To: Muhammad Essop; Stephan Jacobs; Sheldon Vandrey; Coenrad Agenbach; Thabile Sangweni; Mmamohale Kabasa
Subject: RE: Pre-application Meeting Ref No: 2018-12-0003 - Umsobomvu Solar PV Facilities
Attachments: 15324_Umsobomvu PV EIAs_DEA Pre-App Meeting_Final Minutes_Ver1_20190627_....pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Good day All

Kindly find attached the final minutes of the pre-application meeting that took place on 19 February 2019 for the proposed Development of the Umsobomvu Solar Photovoltaic (PV) Facilities and Associated Grid Infrastructure near Noupoort and Middelburg in the Eastern and Northern Cape Provinces.

The minutes will also be attached to the EIA application forms that are envisaged to be submitted in mid-July 2019.

Kind Regards
Andrea Gibb
Divisional Manager
SiVEST Environmental Division

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Durban | Johannesburg | Pretoria | Pietermaritzburg | Richards Bay | Port Louis (Mauritius)

From: Muhammad Essop [mailto:MEssop@environment.gov.za]
Sent: Tuesday, 25 June 2019 08:10
To: Andrea Gibb <AndreaG@sivest.co.za>; Stephan Jacobs <StephanJ@sivest.co.za>; Sheldon Vandrey <Sheldon.vandrey@edf-re.co.za>; Coenrad Agenbach <Cagenbach@environment.gov.za>; Thabile Sangweni <TSangweni@environment.gov.za>; Mmamohale Kabasa <MKabasa@environment.gov.za>
Subject: RE: Pre-application Meeting Ref No: 2018-12-0003 - Umsobomvu Solar PV Facilities

Dear Andrea.

Apologies for the delay.

The minutes are fine and we can proceed with the project.

Regards

Muhammad Essop
Assistant Director - Strategic Infrastructure Developments
Integrated Environmental Authorisations
Department of Environmental Affairs
Private Bag X447
Pretoria
0001
(012) 399 9406
MEssop@environment.gov.za

From: Andrea Gibb <AndreaG@sivest.co.za>
Sent: Friday, June 7, 2019 11:05
To: Muhammad Essop <MEssop@environment.gov.za>; Stephan Jacobs <StephanJ@sivest.co.za>; Sheldon Vandrey <Sheldon.vandrey@edf-re.co.za>; Coenrad Agenbach <Cagenbach@environment.gov.za>; Thabile Sangweni <TSangweni@environment.gov.za>; Mmamohale Kabasa <MKabasa@environment.gov.za>
Subject: RE: Pre-application Meeting Ref No: 2018-12-0003 - Umsobomvu Solar PV Facilities

Hi Muhammad

Thank you for the feedback.

Attached is the word version as requested.

Noted, we will accept comments until the end of next week (14 June 2019).

Kind Regards
Andrea Gibb
Divisional Manager
SiVEST Environmental Division

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From: Muhammad Essop [mailto:MEssop@environment.gov.za]
Sent: Friday, 07 June 2019 09:56
To: Andrea Gibb <AndreaG@sivest.co.za>; Stephan Jacobs <StephanJ@sivest.co.za>; Sheldon Vandrey <Sheldon.vandrey@edf-re.co.za>; Coenrad Agenbach <Cagenbach@environment.gov.za>; Thabile Sangweni <TSangweni@environment.gov.za>; Mmamohale Kabasa <MKabasa@environment.gov.za>
Subject: RE: Pre-application Meeting Ref No: 2018-12-0003 - Umsobomvu Solar PV Facilities

Dear Andrea.

Please could you send through the minutes in a word format so that we can make any changes if necessary in track.

Further note that due to the delay in time from the meeting till the minutes were presented for review and comment, we will provide comments by the end of next week.

Regards

Muhammad Essop
Assistant Director - Strategic Infrastructure Developments
Integrated Environmental Authorisations
Department of Environmental Affairs
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0001
(012) 399 9406
MEssop@environment.gov.za

From: Andrea Gibb <AndreaG@sivest.co.za>
Sent: Wednesday, June 5, 2019 14:25
To: Stephan Jacobs <StephanJ@sivest.co.za>; Sheldon Vandrey <Sheldon.vandrey@edf-re.co.za>; Muhammad Essop <MEssop@environment.gov.za>; Coenrad Agenbach <Cagenbach@environment.gov.za>; Thabile Sangweni <TSangweni@environment.gov.za>; Mmamohale Kabasa <MKabasa@environment.gov.za>; Pfano Nengudza <pnengudza@environment.gov.za>
Subject: RE: Pre-application Meeting Ref No: 2018-12-0003 - Umsobomvu Solar PV Facilities

Good day All

As per the email below, please kindly submit your comments on the draft minutes to us by Friday 7 June 2019.

Kind Regards
Andrea Gibb
Divisional Manager
SiVEST Environmental Division

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Durban | Johannesburg | Pretoria | Pietermaritzburg | Richards Bay | Port Louis (Mauritius)

From: Andrea Gibb
Sent: Monday, 27 May 2019 14:35
To: Stephan Jacobs <StephanJ@sivest.co.za>; 'Sheldon Vandrey' <Sheldon.vandrey@edf-re.co.za>; 'MEssop@environment.gov.za' <MEssop@environment.gov.za>; cagenbach@environment.gov.za; 'TSangweni@environment.gov.za' <TSangweni@environment.gov.za>; 'Mmamohale Kabasa' <MKabasa@environment.gov.za>; 'pnengudza@environment.gov.za' <pnengudza@environment.gov.za>
Subject: Pre-application Meeting Ref No: 2018-12-0003 - Umsobomvu Solar PV Facilities

Good day All

Please find attached the Draft Minutes of the pre-application meeting that took place on 19 February 2019 for the proposed Development of the Umsobomvu Solar Photovoltaic (PV) Facilities and Associated Grid Infrastructure near Noupoort and Middelburg in the Eastern and Northern Cape Provinces.

The minutes also outline the proposed way forward in terms of applying for environmental authorisation (EA), as indicated in item 35.

We kindly request that you submit your comments on the Draft minutes to us (andreag@sivest.co.za) by 7 June 2019. The minutes will be finalised and distributed thereafter.

Kind Regards
Andrea Gibb
Divisional Manager
SiVEST Environmental Division

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Appendix 9C
Specialist ToR

PROPOSED UMSOBOMVU SOLAR PV ENERGY FACILITIES
PROJECT DESCRIPTION

It is proposed that three (3) Solar Photovoltaic (PV) Energy Facilities, with associated grid connection infrastructure, will be developed, these being:

- ***Mooi Plaats Solar PV Facility***, on an application site of approximately 5 303ha, comprising the following farm portions:
  - Portion 1 of Leuwe op No 120
  - Remainder of Mooiplaats No 121

- ***Wonderheuvel Solar PV Facility***, on an application site of approximately 5 652ha, comprising the following farm portions:
  - Remainder of Mooiplaats No 121
  - Portion 3 of Wonder Heuvel No 140
  - Portion 5 of Holle Fountain No 133

- ***Paarde Valley Solar PV Facility***, on an application site of approximately 3 695ha, comprising the following farm portion:
  - Portion 2 of Paarde Valley No 62: and
  - Portion 7 of the Farm Leeuw Hoek No. 61.

Maps showing the proposed solar PV projects and their respective grid connections will be sent to the specialists.

1 SOLAR PV COMPONENTS

Mooi Plaats Solar PV Energy Facility:

The proposed Mooi Plaats Solar PV Energy Facility will include the following components:

- Three (3) PV array areas, occupying a combined total area of approximately 777 hectares (ha).
- The proposed solar PV energy facility will have a maximum total generation capacity of approximately **400MW** and will comprise approximately **1 142 857** PV modules. The final number of modules as well as their configuration will only be determined in the detailed design phase.
- PV modules will be either fixed tilt mounting or single axis tracking mounting, and the modules will be either crystalline silicon or thin film technology. Each module will be approximately 2m wide and between 1m and 4m in height, depending on the mounting type.

- Internal roads, between 4m and 10m wide, will provide access to the PV arrays. Existing site roads will be used wherever possible, although new site roads will be constructed where necessary.
- Up to three (3) temporary construction laydown / staging areas of approximately 4ha each.
- Operation and maintenance (O&M) buildings will be provided for each PV array area, occupying a site of approximately 1ha each. Up to a maximum of three (3) O&M buildings will thus be constructed.
- Medium voltage cabling will link the solar PV energy facility to the grid connection infrastructure. These cables will be laid underground wherever technically feasible.

Wonderheuvel Solar PV Energy Facility:

The proposed Wonderheuvel Solar PV Energy Facility will include the following components:

- Six (6) PV array areas, occupying a combined total area of approximately 864ha.
- The proposed solar PV energy facility will have a maximum total generation capacity of approximately **480MW** and will comprise approximately **1 371 429** PV modules. The final number of modules as well as their configuration will only be determined in the detailed design phase.
- PV modules will be either fixed tilt mounting or single axis tracking mounting, and the modules will be either crystalline silicon or thin film technology. Each module will be approximately 2m wide and between 1m and 4m in height, depending on the mounting type.
- Internal roads, between 4m and 10m wide, will provide access to the PV arrays. Existing site roads will be used wherever possible, although new site roads will be constructed where necessary.
- Up to a maximum of four (4) temporary construction laydown / staging areas of approximately 4ha each.
- Operation and maintenance (O&M) buildings will be provided for each PV array area, occupying a site of approximately 1ha each. However, certain PV array areas will share O&M buildings. Up to a maximum of four (4) O&M buildings will thus be constructed.
- Medium voltage cabling will link the solar PV energy facility to the grid connection infrastructure. These cables will be laid underground wherever technically feasible.

Paarde Valley Solar PV Energy Facility:

The proposed Paarde Valley Solar PV Energy Facility will include the following components:

- Five (5) PV array areas, occupying a combined total area of approximately 1 337ha.
- The proposed solar PV energy facility will have a maximum total generation capacity of approximately **700MW** and will comprise approximately **2 000 000** PV modules. The final number of modules as well as their configuration will only be determined in the detailed design phase.
- PV modules will be either fixed tilt mounting or single axis tracking mounting, and the modules will be either crystalline silicon or thin film technology. Each module will be approximately 2m wide and between 1m and 4m in height, depending on the mounting type.

- Internal roads, between 4m and 10m wide, will provide access to the PV arrays. Existing site roads will be used wherever possible, although new site roads will be constructed where necessary.
- Up to five (5) temporary construction laydown / staging areas of approximately 4ha each.
- Operation and maintenance (O&M) buildings will be provided for each PV array area, occupying a site of approximately 1ha each. Up to a maximum of five (5) O&M buildings will thus be constructed.
- Medium voltage cabling will link the solar PV energy facility to the grid connection infrastructure. These cables will be laid underground wherever technically feasible.

2 GRID CONNECTION INFRASTRUCTURE

The proposed grid connection infrastructure will include the following components:

- New on-site substations and collector substations to serve each solar PV energy facility, each occupying an area of up to approximately 4ha.
- A new 132kV overhead power line connecting the on-site substations and/or collector substations to either the Hydra D Main Transmission Substation (MTS) or the proposed Coleskop Wind Energy Facility (WEF) substation, from where the electricity will be fed into the national grid. The type of power line towers being considered at this stage to include both lattice and monopole towers which will be up to 25m in height.

Grid connection infrastructure alternatives have been provided for each PV project. These alternatives essentially provide for different route alignments with associated substations contained within an assessment corridor between approximately 400m and 900m wide. This is to allow for flexibility to route the power line on either side of the existing high voltage Eskom power lines. The respective alternatives are as follows:

Mooi Plaats Solar PV Grid Connection:

The alternatives essentially provide for two (2) different route alignments with associated substations contained within an assessment corridor between approximately 400m and 900m wide. The alternatives are as follows:

OPTION 1:

- **Corridor Option 1a -** links Substation 2 and Substation 1a to the Hydra D MTS.
- **Corridor Option 1b -** links Substation 2 and Substation 1b to the Hydra D MTS.

OPTION 2:

- **Corridor Option 2a -** links Substation 2 and Substation 1a to the Hydra D MTS via the proposed Central Collector substation located on the Wonderheuvel PV project application site.
- **Corridor Option 2b -** links Substation 2 and Substation 1b to the Hydra D MTS via the proposed Central Collector substation located on the Wonderheuvel PV project application site.

Wonderheuvel Solar PV Grid Connection:

The alternatives essentially provide for three (3) different route alignments with associated substations contained within an assessment corridor between approximately 400m and 900m wide. The alternatives are as follows:

OPTION 1:

- **Corridor Option 1a** involves two (2) separate grid connections to serve the northern and southern sections of the application site.
  i. The *northern connection* links the Proposed Substation 3a to the Hydra D MTS via the proposed Northern Collector Substation located on the Mooi Plaats PV project application site.
  ii. The *southern connection* links the proposed Substation 4a to the Coleskop WEF Substation via the proposed Southern Collector Substation located on the Paarde Valley PV Project application site.

- **Corridor Option 1b** involves two (2) separate grid connections to serve the northern and southern sections of the application site.
  i. The *northern* connection links the Proposed Substation 3a to the Hydra D MTS via the proposed Northern Collector Substation located on the Mooi Plaats PV project application site.
  ii. The *southern connection* links the proposed Substation 4b to the Coleskop WEF Substation via the proposed Southern Collector Substation located on the Paarde Valley PV Project application site.

- **Corridor Option 1c** involves two (2) separate grid connections to serve the northern and southern sections of the application site.
  i. The *northern* connection links the Proposed Substation 3b to the Hydra D MTS via the proposed Northern Collector Substation located on the Mooi Plaats PV project application site.
  ii. The *southern connection* links the proposed Substation 4a to the Coleskop WEF Substation via the proposed Southern Collector Substation located on the Paarde Valley PV Project application site.

- **Corridor Option 1d** involves two (2) separate grid connections to serve the northern and southern sections of the application site.
  i. The *northern connection* links the Proposed Substation 3b to Hydra D MTS via the proposed Northern Collector Substation located on the Mooi Plaats PV project application site.
  ii. The *southern connection* links the proposed Substation 4b to the Coleskop WEF Substation via the proposed Southern Collector Substation located on the Paarde Valley PV Project application site.

OPTION 2:

- **Corridor Option 2a -** links Substation 3a to the Hydra D MTS via the proposed Central Collector Substation.

- **Corridor Option 2b** - Option 2b links Substation 3b to Hydra D MTS via the proposed Central Collector Substation.

OPTION 3:

- **Corridor Option 3** links Substation 4b to Hydra D MTS via the proposed Central Collector Substation.

Paarde Valley Solar PV Grid Connection:

The alternatives essentially provide for two (2) different route alignments with associated substations contained within an assessment corridor between approximately 400m and 900m wide. The alternatives are as follows:

OPTION 1:

- Corridor **Option 1a** involves two (2) separate grid connections to serve the northern and southern sections of the application site.
  i. The *northern connection* links Substation 5 to Coleskop Substation via the proposed Southern Collector Sub (Substation 6a will act as Central Collector for this option).
  ii. The *southern connection* links Substation 7a to the Coleskop Substation via the proposed Southern Collector Substation (Substation 6a will act as Southern Collector for this option).

- Corridor **Option 1b** involves two (2) separate grid connections to serve the northern and southern sections of the application site.
  i. The *northern connection* links Substation 5 to Coleskop Substation via the proposed Southern Collector Sub (Substation 6b will act as Southern Collector for this option).
  ii. The *southern connection* links Substation 7a to the Coleskop Substation via the proposed Southern Collector Substation (Substation 6b will act as Southern Collector for this option).

- Corridor **Option 1c** involves two (2) separate grid connections to serve the northern and southern sections of the application site.
  i. The *northern connection* links Substation 5 to Coleskop Substation via the proposed Southern Collector Sub (Substation 6a will act as Southern Collector for this option).
  ii. The *southern connection* links Substation 7b to the Coleskop Substation via the proposed Southern Collector Substation (Substation 6a will act as Southern Collector for this option).

- Corridor **Option 1d** involves two (2) separate grid connections to serve the northern and southern sections of the application site.
  i. The *northern connection* links Substation 5 to Coleskop Substation via the proposed Southern Collector Sub (Substation 6b will act as Southern Collector for this option).
  ii. The *southern connection* links Substation 7b to the Coleskop Substation via the proposed Southern Collector Substation (Substation 6b will act as Southern Collector for this option).

OPTION 2:

- Corridor **Option 2a** involves two (2) separate grid connections to serve the northern and southern sections of the application site.
  i. The *northern connection* links Substation 5 to Hydra D MTS via the proposed Central Collector Sub located on the Wonderveuvel PV Project application site.
  ii. The *southern connection* links Substation 6a and 7a to the Hydra D MTS via the proposed Central Collector Substation located on the Wonderheuvel PV Project application site.

- Corridor **Option 2b** involves two (2) separate grid connections to serve the northern and southern sections of the application site.
  i. The *northern connection* links Substation 5 to Hydra D MTS via the proposed Central Collector Sub located on the Wonderheuvel PV Project application site.
  ii. The *southern connection* links Substation 6b and 7b to the Hydra D MTS via the proposed Central Collector Substation located on the Wonderheuvel PV Project application site.

- Corridor **Option 2c** involves two (2) separate grid connections to serve the northern and southern sections of the application site.
  i. The *northern connection* links Substation 5 to Hydra D MTS via the proposed Central Collector Sub located on the Wonderheuvel PV Project application site.
  ii. The *southern connection* links Substation 6a and 7b to the Hydra D MTS via the proposed Central Collector Substation located on the Wonderheuvel PV Project application site.

- Corridor **Option 2d** involves two (2) separate grid connections to serve the northern and southern sections of the application site.
  i. The *northern connection* links Substation 5 to Hydra D MTS via the proposed Central Collector Sub located on the Wonderheuvel PV Project application site.
  ii. The *southern connection* links Substation 6b and 7a to the Hydra D MTS via the proposed Central Collector Substation located on the Wonderheuvel PV Project application site.

Maps showing the proposed solar PV projects and their respective grid connections will be sent to the specialists.

PROPOSED UMSOBOMVU SOLAR PV ENERGY FACILITIES AND ASSOCIATED GRID CONNECTION INFRASTRUCTURE SPECIALIST REPORTING REQUIREMENTS SCOPING PHASE

Specialists are requested to provide ***one*** (1) scoping phase report assessing all three Umsobomvu application sites (i.e. Mooi Plaats, Wonderheuvel and Paarde Valley). The report should however include separate assessment and impact rating chapters/sections for each of the three solar PV facilities and their respective grid connection alternatives.

1 IMPACT RATING METHODOLOGY

The impacts of each solar PV and grid connection infrastructure project (during the Construction, Operation and Decommissioning Phases) are to be assessed and rated according to the methodology developed by SiVEST and Specialists will be required to make use of the impact rating matrix provided (in Excel format) for this purpose. Please note that the significance of Cumulative Impacts should also be rated in this section. Both the methodology and the rating matrix have been provided in the project information pack which can be accessed via the following link to OneDrive:

https://1drv.ms/f/s!Al6p9GVipkSfbyjpNzoWWfGIn6Y

2 CUMULATIVE IMPACT ASSESSMENT

Cumulative impact assessments must be undertaken for each of the three solar PV facilities and associated grid connection infrastructure projects to determine the cumulative impact that will materialise should other Renewable Energy Facilities (REFs) and large scale industrial developments be constructed within 35kms of the proposed developments.

The cumulative impact assessment must contain the following:

- A cumulative environmental impact statement noting whether the overall impact is acceptable; and
- A review of the specialist reports undertaken for other REFs and an indication of how the recommendations, mitigation measures and conclusion of the studies have been considered.

In order to assist the specialists in this regard, SiVEST has provided the following documentation/data in the information pack:

- A summary table listing all REFs identified within 35kms of the proposed solar PV facilities and associated grid connection infrastructure;

- A map showing the location of the identified REFs;
- ML files; and
- Relevant EIA/BA reports, that could be obtained.

3 COMPARATIVE ASSESSMENT OF ALTERNATIVES

The two grid connection infrastructure alternatives for each solar PV project must be comparatively assessed as per the table provided in the information pack.

4 GENERAL SUBMISSION REQUIREMENTS

In addition to the above, please ensure that your specialist report includes the following:

- A table at the beginning of your report cross referencing how the requirements for specialist reports in accordance with Appendix 6 of the EIA Regulations, 2014 (as amended) has been adhered to. An MS Word version has been provided in the information pack.
- A thorough overview of all applicable legislation, guidelines.
- Identification of sensitive areas to be avoided.
- Recommend mitigation measures in order to minimise the impact of the proposed development.
- Provide implications of specialist findings for the proposed development (e.g. permits, licenses etc.).
- Specify if any further assessment will be required in the EIA phase.
- Include an Impact Statement, concluding whether the project can be authorised or not.
- A copy of the Specialist Declaration of Interest form, containing original signatures, must be appended to all Draft and Final Reports. This form has been included in the information pack. Please note that the undertaking/affirmation under oath section of the report must be signed by a Commissioner of Oaths.

5 REPORT / DATA FORMATS

- Specialist scoping phase reports must be provided in MS Word format.
- Where maps have been inserted into the report, we will require a separate map set in PDF format for inclusion in our submission.
- Where figures and/or photos have been inserted into the report, we will require the original graphic in jpg format for inclusion in our submission.
- Delineated areas of sensitivity must be provided in either ESRI shape file format or Google Earth ML format. Sensitivity classes must be included in the attribute tables with a clear indication of which areas are “No-Go” areas.

PROPOSED UMSOBOMVU SOLAR PV ENERGY FACILITIES AND ASSOCIATED GRID CONNECTION INFRASTRUCTURE SPECIALIST REPORTING REQUIREMENTS EIA PHASE

Specialists are requested to provide ***one (1)*** EIA phase report assessing all three (3) Umsobomvu solar PV energy facilities (i.e. Mooi Plaats, Wonderheuvel and Paarde Valley) and associated grid connection infrastructure (132kV overhead power line and 33/132kV on-site and collector substations). The report should however include separate assessment and impact rating chapters/sections for each of the three (3) solar PV facilities and their respective grid connection alternatives.

Please be advised that your scoping phase report needs to be updated / revised to include the following:

- a review of the findings in accordance with detailed site layouts, including the PV array areas put forward as a result of the identified sensitive areas;
- a comparative assessment of the layout alternatives provided; and
- addressing any comments or concerns arising from the public participation process.

1 IMPACT RATING METHODOLOGY

The impacts of each solar PV and Grid project (during the Construction, Operation and Decommissioning Phases) are to be assessed and rated according to the methodology developed by SiVEST and Specialists will be required to make use of the impact rating matrix provided (in Excel format) for this purpose. Please note that the significance of Cumulative Impacts should also be rated in this section. Both the methodology and the rating matrix have been provided in the project information pack which can be accessed via the following link to OneDrive:

https://1drv.ms/f/s!Al6p9GVipkSfbyjpNzoWWfGIn6Y

2 CUMULATIVE IMPACT ASSESSMENT

Cumulative impact assessments must be undertaken for each of the three (3) solar PV facilities and their respective grid connection infrastructure to determine the cumulative impact that will materialise should other Renewable Energy Facilities (REFs) and large scale industrial developments be constructed within 35kms of the proposed development.

The cumulative impact assessment must contain the following:

- A cumulative environmental impact statement noting whether the overall impact is acceptable; and

- A review of the specialist reports undertaken for other REFs and an indication of how the recommendations, mitigation measures and conclusion of the studies have been considered.

In order to assist the specialists in this regard, SiVEST has provided the following documentation/data in the information pack:

- A summary table listing all REFs identified within 35kms of the proposed solar PV facilities;
- A map showing the location of the identified REFs;
- ML files; and
- Relevant EIA/BA reports, that could be obtained.

3 COMPARATIVE ASSESSMENT OF ALTERNATIVES

The following alternatives must be comparatively assessed:

- Laydown Areas and Operation & Maintenance (O&M) Building Site Alternatives (as per the table provided). The Applicant wants to construct one (1) Laydown Area and O&M Building per PV array area; and
- Grid Connection Infrastructure Alternatives for each solar PV project (as per the table provided).

It should be noted that the locations of the on-site / collector substations will depend on the Grid Connection Infrastructure Alternatives which are chosen as '*preferred*' for each project.

4 GENERAL SUBMISSION REQUIREMENTS

In addition to the above, please ensure that your specialist report includes the following:

- A table at the beginning of your report cross referencing how the requirements for specialist reports in accordance with Appendix 6 of the EIA Regulations, 2014 (as amended) has been adhered to. An MS Word version has been provided in the information pack.
- A thorough overview of all applicable legislation, guidelines.
- Identification of sensitive areas to be avoided.
- Recommend mitigation measures in order to minimise the impact of the proposed development.
- Provide implications of specialist findings for the proposed development (e.g. permits, licenses etc.).
- Specify if any further assessment / investigation will be required.
- Include an Impact Statement, concluding whether the project can be authorised or not.
- A copy of the Specialist Declaration of Interest form, containing original signatures, must be appended to all Draft and Final Reports. This form has been included in the information pack. Please note that the undertaking/affirmation under oath section of the report must be signed by a Commissioner of Oaths.

5 REPORT / DATA FORMATS

- Specialist scoping phase reports must be provided in MS Word format.

- Where maps have been inserted into the report, we will require a separate map set in PDF format for inclusion in our submission.
- Where figures and/or photos have been inserted into the report, we will require the original graphic in jpg format for inclusion in our submission.
- Delineated areas of sensitivity must be provided in either ESRI shape file format or Google Earth ML format. Sensitivity classes must be included in the attribute tables with a clear indication of which areas are “No-Go” areas.

PROPOSED UMSOBOMVU SOLAR PV ENERGY FACILITIES
COMPARATIVE ASSESSMENT OF ALTERNATIVES
PV AND GRID CONNECTION INFRASTRUCTURE

Key

PREFERRED	The alternative will result in a low impact / reduce the impact
FAVOURABLE	The impact will be relatively insignificant
LEAST PREFERRED	The alternative will result in a high impact / increase the impact
NO PREFERENCE	The alternative will result in equal impacts

PV INFRASTRUCTURE ALTERNATIVES (LAYDOWN AREAS AND O&M BUILDINGS)	**Preference**	**Reasons (incl. potential issues)**
MOOI PLAATS SOLAR PV FACILITY:		
Laydown Area and O&M Building Site Option 1		
Laydown Area and O&M Building Site Option 2		
Laydown Area and O&M Building Site Option 3		
Laydown Area and O&M Building Site Option 4		
Laydown Area and O&M Building Site Option 5		
Laydown Area and O&M Building Site Option 6		
WONDERHEUVEL SOLAR PV FACILITY:		
Laydown Area and O&M Building Site Option 1		
Laydown Area and O&M Building Site Option 2		
Laydown Area and O&M Building Site Option 3		
Laydown Area and O&M Building Site Option 4		
Laydown Area and O&M Building Site Option 5		
Laydown Area and O&M Building Site Option 6		

PV INFRASTRUCTURE ALTERNATIVES (LAYDOWN AREAS AND O&M BUILDINGS)	Preference	Reasons (incl. potential issues)
Laydown Area and O&M Building Site Option 7		
Laydown Area and O&M Building Site Option 8		
PAARDE VALLEY SOLAR PV FACILITY:		
Laydown Area and O&M Building Site Option 1		
Laydown Area and O&M Building Site Option 2		
Laydown Area and O&M Building Site Option 3		
Laydown Area and O&M Building Site Option 4		
Laydown Area and O&M Building Site Option 5		
Laydown Area and O&M Building Site Option 6		
Laydown Area and O&M Building Site Option 7		
Laydown Area and O&M Building Site Option 8		
Laydown Area and O&M Building Site Option 9		

GRID CONNECTION INFRASTRUCTURE ALTERNATIVES (POWER LINE CORRIDORS AND ASSOCIATED SUBSTATIONS)	Preference	Reasons (incl. potential issues)
MOOI PLAATS SOLAR PV FACILITY:		
Grid Connection Option 1a		
Grid Connection Option 1b		
Grid Connection Option 2a		
Grid Connection Option 2a		
WONDERHEUVEL SOLAR PV FACILITY:		
Grid Connection Option 1a		
Grid Connection Option 1b		
Grid Connection Option 1c		
Grid Connection Option 1d		

GRID CONNECTION INFRASTRUCTURE ALTERNATIVES (POWER LINE CORRIDORS AND ASSOCIATED SUBSTATIONS)	Preference	Reasons (incl. potential issues)
Grid Connection Option 2a		
Grid Connection Option 2b		
Grid Connection Option 3		
PAARDE VALLEY SOLAR PV FACILITY:		
Grid Connection Option 1a		
Grid Connection Option 1b		
Grid Connection Option 1c		
Grid Connection Option 1d		
Grid Connection Option 2a		
Grid Connection Option 2b		
Grid Connection Option 2c		
Grid Connection Option 2d		

1 ENVIRONMENTAL IMPACT ASSESSMENT (EIA) METHODOLOGY

The Environmental Impact Assessment (EIA) Methodology assists in evaluating the overall effect of a proposed activity on the environment. Determining of the significance of an environmental impact on an environmental parameter is determined through a systematic analysis.

1.1 Determination of Significance of Impacts

Significance is determined through a synthesis of impact characteristics which include context and intensity of an impact. Context refers to the geographical scale (i.e. site, local, national or global), whereas intensity is defined by the severity of the impact e.g. the magnitude of deviation from background conditions, the si e of the area affected, the duration of the impact and the overall probability of occurrence. Significance is calculated as shown in **Table 1**.

Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The total number of points scored for each impact indicates the level of significance of the impact.

1.2 Impact Rating System

The impact assessment must take account of the nature, scale and duration of effects on the environment and whether such effects are positive (beneficial) or negative (detrimental). Each issue / impact is also assessed according to the various project stages, as follows:

- Planning;
- Construction;
- Operation; and
- Decommissioning.

Where necessary, the proposal for mitigation or optimisation of an impact should be detailed. A brief discussion of the impact and the rationale behind the assessment of its significance has also been included.

The significance of Cumulative Impacts should also be rated (As per the Excel Spreadsheet Template).

1.2.1 Rating System Used to Classify Impacts

The rating system is applied to the potential impact on the receiving environment and includes an objective evaluation of the possible mitigation of the impact. Impacts have been consolidated into one (1) rating. In assessing the significance of each issue the following criteria (including an allocated point system) is used:

Table 1: Rating of impacts criteria

ENVIRONMENTAL PARAMETER		
A brief description of the environmental aspect likely to be affected by the proposed activity (e.g. Surface Water).		
ISSUE / IMPACT / ENVIRONMENTAL EFFECT / NATURE		
Include a brief description of the impact of environmental parameter being assessed in the context of the project. This criterion includes a brief written statement of the environmental aspect being impacted upon by a particular action or activity (e.g. oil spill in surface water).		
EXTENT (E)		
This is defined as the area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment of a project in terms of further defining the determined.		
1	Site	The impact will only affect the site
2	Local/district	Will affect the local area or district
3	Province/region	Will affect the entire province or region
4	International and National	Will affect the entire country
PROBABILITY (P)		
This describes the chance of occurrence of an impact		
1	Unlikely	The chance of the impact occurring is extremely low (Less than a 25 chance of occurrence).
2	Possible	The impact may occur (Between a 25 to 50 chance of occurrence).
3	Probable	The impact will likely occur (Between a 50 to 75 chance of occurrence).
4	Definite	Impact will certainly occur (Greater than a 75 chance of occurrence).
REVERSIBILITY (R)		
This describes the degree to which an impact on an environmental parameter can be successfully reversed upon completion of the proposed activity.		
1	Completely reversible	The impact is reversible with implementation of minor mitigation measures
2	Partly reversible	The impact is partly reversible but more intense mitigation measures are required.
3	Barely reversible	The impact is unlikely to be reversed even with intense mitigation measures.
4	Irreversible	The impact is irreversible and no mitigation measures exist.
IRREPLACEABLE LOSS OF RESOURCES (L)		
This describes the degree to which resources will be irreplaceably lost as a result of a proposed activity.		
1	No loss of resource.	The impact will not result in the loss of any resources.
2	Marginal loss of resource	The impact will result in marginal loss of resources.
3	Significant loss of resources	The impact will result in significant loss of resources.
4	Complete loss of resources	The impact is result in a complete loss of all resources.

DURATION (D)		
This describes the duration of the impacts on the environmental parameter. Duration indicates the lifetime of the impact as a result of the proposed activity.		
1	Short term	The impact and its effects will either disappear with mitigation or will be mitigated through natural process in a span shorter than the construction phase (0 – 1 years), or the impact and its effects will last for the period of a relatively short construction period and a limited recovery time after construction, thereafter it will be entirely negated (0 – 2 years).
2	Medium term	The impact and its effects will continue or last for some time after the construction phase but will be mitigated by direct human action or by natural processes thereafter (2 – 10 years).
3	Long term	The impact and its effects will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter (10 – 50 years).
4	Permanent	The only class of impact that will be non-transitory. Mitigation either by man or natural process will not occur in such a way or such a time span that the impact can be considered transient (Indefinite).
INTENSITY / MAGNITUDE (I / M)		
Describes the severity of an impact (i.e. whether the impact has the ability to alter the functionality or quality of a system permanently or temporarily).		
1	Low	Impact affects the quality, use and integrity of the system/component in a way that is barely perceptible.
2	Medium	Impact alters the quality, use and integrity of the system/component but system/ component still continues to function in a moderately modified way and maintains general integrity (some impact on integrity).
3	High	Impact affects the continued viability of the system/component and the quality, use, integrity and functionality of the system or component is severely impaired and may temporarily cease. High costs of rehabilitation and remediation.
4	Very high	Impact affects the continued viability of the system/component and the quality, use, integrity and functionality of the system or component permanently ceases and is irreversibly impaired (system collapse). Rehabilitation and remediation often impossible. If possible rehabilitation and remediation often unfeasible due to extremely high costs of rehabilitation and remediation.
SIGNIFICANCE (S)		

Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. This describes the significance of the impact on the environmental parameter. The calculation of the significance of an impact uses the following formula:

Significance = (Extent + probability + reversibility + irreplaceability + duration) x magnitude/intensity.

The summation of the different criteria will produce a non-weighted value. By multiplying this value with the magnitude/intensity, the resultant value acquires a weighted characteristic which can be measured and assigned a significance rating.

Points	Impact Significance Rating	Description
5 to 23	Negative Low impact	The anticipated impact will have negligible negative effects and will require little to no mitigation.
5 to 23	Positive Low impact	The anticipated impact will have minor positive effects.
24 to 42	Negative Medium impact	The anticipated impact will have moderate negative effects and will require moderate mitigation measures.
24 to 42	Positive Medium impact	The anticipated impact will have moderate positive effects.
43 to 61	Negative High impact	The anticipated impact will have significant effects and will require significant mitigation measures to achieve an acceptable level of impact.
43 to 61	Positive High impact	The anticipated impact will have significant positive effects.
62 to 80	Negative Very high impact	The anticipated impact will have highly significant effects and are unlikely to be able to be mitigated adequately. These impacts could be considered fatal flaws .
62 to 80	Positive Very high impact	The anticipated impact will have highly significant positive effects.

The table below is to be represented in the Impact Assessment section of the report. The excel spreadsheet template can be used to complete the Impact Assessment.

Table 2: Rating of impacts template and example

ENVIRONMENTAL PARAMETER	ISSUE / IMPACT / ENVIRONMENTAL EFFECT/ NATURE	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION									RECOMMENDED MITIGATION MEASURES	ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION								
		E	P	R	L	D	I / M	TOTAL	STATUS (+ OR -)	S		E	P	R	L	D	I / M	TOTAL	STATUS (+ OR -)	S
Construction Phase																				
Vegetation and protected plant species	Vegetation clearing for access roads, turbines and their service areas and other infrastructure will impact on vegetation and protected plant species.	2	4	2	2	3	3	39	-	Medium	**Outline/explain the mitigation measures to be undertaken to ameliorate the impacts that are likely to arise from the proposed activity. These measures will be detailed in the EMPr.**	2	4	2	1	3	2	24	-	Low
Operational Phase																				

Fauna	Fauna will be negatively affected by the operation of the wind farm due to the human disturbance, the presence of vehicles on the site and possibly by noise generated by the wind turbines as well.	2	3	2	1	4	3	36	-	Medium	**Outline/explain the mitigation measures to be undertaken to ameliorate the impacts that are likely to arise from the proposed activity. These measures will be detailed in the EMPr.**	2	2	2	1	4	2	22	-	Low
Decommissioning Phase																				
Fauna	Fauna will be negatively affected by the decommissioning of the wind farm due to the human disturbance, the presence and operation of vehicles and heavy machinery on the site and the noise generated.	2	3	2	1	2	3	30	-	Medium	**Outline/explain the mitigation measures to be undertaken to ameliorate the impacts that are likely to arise from the proposed activity. These measures will be detailed in the EMPr.**	2	2	2	1	2	2	18	-	Low
Cumulative																				

Broad-scale ecological processes	Transformation and presence of the facility will contribute to cumulative habitat loss and impacts on broad-scale ecological processes such as fragmentation.	2	4	2	2	3	2	26	-	Medium	**Outline/explain the mitigation measures to be undertaken to ameliorate the impacts that are likely to arise from the proposed activity. These measures will be detailed in the EMPr.**	2	3	2	1	3	2	22	-	Low

Appendix 9D

SiVEST Impact Rating Methodology

Name	Wandelhenvel Trust
Filing number	K 1783001 / 051 / 019.
Security type	051
Identification	20 825
Number	807 158 3635

Opgestel deur my,

TRANSPORTBESORGER
GROENEWALD A

SEËLREG DUTY R
FOOI FEE R 100,00

PARAS 2 AND 3

VERBIND MORTGAGED

VIR FOR R 150 000,00

B : 15034 / 97

07 03 / 97

REGISTRATEUR/REGISTRAR

T 20825 / 97

4710

TRANSPORTAKTE

GENEMAAK DATA CAPTURE

OPERATEUR/OPERATOR

(KRAGTENS 'n PROKURASIE)

SY DIT KENNELIK AAN ALMAL WIE DIT MAG AANGAAN

DAT ANTHONY JOHN NOYES PLUMMER

verskyn het voor my, Registrateur van Aktes te KAAPSTAD, hy die gesegde Komparant, synde daartoe behoorlik gemagtig deur 'n Volmag uitgevoer te MIDDELBURG OOS-KAAP op die 31ste dag van OKTOBER 1996 , deur

ANDRIES JOHANNES KEUN
Identiteitsnommer 401117 5014 00 3
Getroud buite gemeenskap van goedere

(Hierna die Komparant se PRINSIPAAL genoem)

FOR FURTHER ENDORSEMENTS SEE
VIR VERDERE ENDOSSEMENTE SIEN

6

4

CERTIFIED COPY

LAND- EN LANBOUBANK - PARA 1

(2)

VERBIND MORTGAGED

VIR FOR R 250 000,00

B55586 97

03 09 97

REGISTRATEUR/REGISTRAR

BC 462

GEKANSELLEER
CANCELLED

REGISTRATEUR/REGISTRAR

25 SEP 2008

PARA 2 AND 3

VERBIND MORTGAGED

VIR FOR R 750 000,00

B 012058/2002

2002-03-01

REGISTRATEUR/REGISTRAR

VERBIND MORTGAGED

VIR FOR R 3 200 000,00

058765/08

B

25 SEP 2008

REGISTRATEUR/REGISTRAR

welke Volmag, geteken in die teenwoordigheid van getuie ooreenkomstig die Wet, my hede getoon is;

EN die Komparant het verklaar dat sy voorsegde PRINSIPAAL werklik en wettiglik verkoop het op 22 JULIE 1996 en dat Hy, in sy voornoemde hoedanigheid hiermee in volkome en vrye eiendom sedeer en transporteer aan en ten gunste van

DIE TRUSTEES INDERTYD VAN DIE WONDERHEUWEL TRUST
(IT 1274/96)

Of sy gemagtigdes:-

1. DIE PLAAS "MOOI PLAATS" NR 121
   Afdeling van Hanover, Provinsie Noord-Kaap
   GROOT: 2953,9333 (TWEE DUISEND NEGE HONDERD DRIE EN VYFTIG komma NEGE DRIE DRIE DRIE)
   Hektaar

   AANVANKLIK OORGEDRA kragtens Sertifikaat van Gewysigde Titel gedateer 23 April 1913 (Hanover Erfpagte Boek 3 Nr 5) met 'n Kaart daaraan geheg en gehou kragtens Transportakte Nr T 5013/1978.

   ONDERHEWIG aan die voorwaardes waarna verwys word in gesegde Sertifikaat van Gewysigde Titel.

2. GEDEELTE 3 (WONDERHEUVEL PROPER) van die gekonsolideerde plaas WONDER HEUVEL NR 140
Afdeling van Hanover, Provinsie Noord-Kaap
GROOT: 2562,5225 (TWEE DUISEND VYF HONDERD TWEE EN SESTIG komma VYF TWEE TWEE VYF)
Hektaar

AANVANKLIK OORGEDRA kragtens Transportakte Nr T 10259/1928 met kaart daaraan geheg en gehou kragtens Transportakte Nr T 20290/1982.

A. ONDERHEWIG aan die voorwaardes waarna verwys word in Transportakte Nr T 12290 gedateer 29 Oktober 1919.

B. VERDER ONDERHEWIG aan die volgende spesiale voorwaarde vervat in Sertifikaat van Gewysigde Titel gedateer 9 September 1913 (Hanover erfpagte, Volume 3 Nr 7) naamlik:-

"That the said land being subject more over to all such duties and regulations as either are already or shall in future be established respecting land held on similar tenure."

3. GEDEELTE 5 (ANNEX WONDER HEUVEL) van die Plaas HOLLE FOUNTAIN NR 133,
Afdeling van Hanover, Provinsie Noord-Kaap
GROOT: 160,1715 (EEN HONDERD EN SESTIG komma EEN SEWE EEN VYF)
Hektaar

AANVANKLIK OORGEDRA kragtens Transportakte Nr T 10259/1928 met kaart daaraan geheg en gehou kragtens Transportakte Nr T 20290/1982.

ONDERHEWIG aan die voorwaardes waarna verwys word in Transportakte Nr T 12290 gedateer 22 Oktober 1919.

4

WESHALWE die Komparant, afstand doen van al die Reg en Eiendomsreg wat sy PRINSIPAAL voorheen op genoemde eiendom gehad en gevolglik oor erken dat sy PRINSIPAAL geheel en al van die besit daarvan onthef en nie meer daartoe geregtig is nie en dat, kragtens hierdie akte, bogenoemde TRANSPORTNEMER

Of sy gemagtigdes, nou is en voortaan daarop geregtig sal wees ooreenkomstig plaaslike gewoonte, maar dat die Staat egter sy Reg behou; en eindelik erken sy PRINSIPAAL die gehele Koopsom op bevredigende wyse ontvang of verseker te hê, ten bedrae van die som van R375 905,00 (DRIE HONDERD VYF EN SEWENTIG DUISEND NEGE HONDERD EN VYF RAND).

AS GETUIES waarvan, het ek die gesegde Registrateur, tesame met die Komparant q.q. hierdie Akte onderteken en met die Ampseël laat bekragtig.

ALDUS GEDAAN en UITGEVOER aan die Kantoor van die REGISTRATEUR VAN AKTES te KAAPSTAD op hede die 7de dag van Maart in die Jaar van Ons Heer Eenduisend Negehonderd ~~Ses~~ Sewe en Negentig (~~1990~~). (1997)

q.q.

In my teenwoordigheid,

REGISTRATEUR VAN AKTES

CERTIFIED COPY

Appendix 9E
SiVEST EIA Methodology

1 ENVIRONMENTAL IMPACT ASSESSMENT (EIA) METHODOLOGY

The Environmental Impact Assessment (EIA) Methodology assists in evaluating the overall effect of a proposed activity on the environment. Determining of the significance of an environmental impact on an environmental parameter is determined through a systematic analysis.

1.1 Determination of Significance of Impacts

Significance is determined through a synthesis of impact characteristics which include context and intensity of an impact. Context refers to the geographical scale (i.e. site, local, national or global), whereas intensity is defined by the severity of the impact e.g. the magnitude of deviation from background conditions, the si e of the area affected, the duration of the impact and the overall probability of occurrence. Significance is calculated as shown in **Table 1**.

Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The total number of points scored for each impact indicates the level of significance of the impact.

1.2 Impact Rating System

The impact assessment must take account of the nature, scale and duration of effects on the environment and whether such effects are positive (beneficial) or negative (detrimental). Each issue / impact is also assessed according to the various project stages, as follows:

- Planning;
- Construction;
- Operation; and
- Decommissioning.

Where necessary, the proposal for mitigation or optimisation of an impact should be detailed. A brief discussion of the impact and the rationale behind the assessment of its significance has also been included.

The significance of Cumulative Impacts should also be rated (As per the Excel Spreadsheet Template).

1.2.1 Rating System Used to Classify Impacts

The rating system is applied to the potential impact on the receiving environment and includes an objective evaluation of the possible mitigation of the impact. Impacts have been consolidated into one (1) rating. In assessing the significance of each issue the following criteria (including an allocated point system) is used:

Table 1: Rating of impacts criteria

ENVIRONMENTAL PARAMETER		
A brief description of the environmental aspect likely to be affected by the proposed activity (e.g. Surface Water).		
ISSUE / IMPACT / ENVIRONMENTAL EFFECT / NATURE		
Include a brief description of the impact of environmental parameter being assessed in the context of the project. This criterion includes a brief written statement of the environmental aspect being impacted upon by a particular action or activity (e.g. oil spill in surface water).		
EXTENT (E)		
This is defined as the area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment of a project in terms of further defining the determined.		
1	Site	The impact will only affect the site
2	Local/district	Will affect the local area or district
3	Province/region	Will affect the entire province or region
4	International and National	Will affect the entire country
PROBABILITY (P)		
This describes the chance of occurrence of an impact		
1	Unlikely	The chance of the impact occurring is extremely low (Less than a 25 chance of occurrence).
2	Possible	The impact may occur (Between a 25 to 50 chance of occurrence).
3	Probable	The impact will likely occur (Between a 50 to 75 chance of occurrence).
4	Definite	Impact will certainly occur (Greater than a 75 chance of occurrence).
REVERSIBILITY (R)		
This describes the degree to which an impact on an environmental parameter can be successfully reversed upon completion of the proposed activity.		
1	Completely reversible	The impact is reversible with implementation of minor mitigation measures
2	Partly reversible	The impact is partly reversible but more intense mitigation measures are required.
3	Barely reversible	The impact is unlikely to be reversed even with intense mitigation measures.
4	Irreversible	The impact is irreversible and no mitigation measures exist.
IRREPLACEABLE LOSS OF RESOURCES (L)		
This describes the degree to which resources will be irreplaceably lost as a result of a proposed activity.		
1	No loss of resource.	The impact will not result in the loss of any resources.
2	Marginal loss of resource	The impact will result in marginal loss of resources.
3	Significant loss of resources	The impact will result in significant loss of resources.
4	Complete loss of resources	The impact is result in a complete loss of all resources.

DURATION (D)		
This describes the duration of the impacts on the environmental parameter. Duration indicates the lifetime of the impact as a result of the proposed activity.		
1	Short term	The impact and its effects will either disappear with mitigation or will be mitigated through natural process in a span shorter than the construction phase (0 – 1 years), or the impact and its effects will last for the period of a relatively short construction period and a limited recovery time after construction, thereafter it will be entirely negated (0 – 2 years).
2	Medium term	The impact and its effects will continue or last for some time after the construction phase but will be mitigated by direct human action or by natural processes thereafter (2 – 10 years).
3	Long term	The impact and its effects will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter (10 – 50 years).
4	Permanent	The only class of impact that will be non-transitory. Mitigation either by man or natural process will not occur in such a way or such a time span that the impact can be considered transient (Indefinite).
INTENSITY / MAGNITUDE (I / M)		
Describes the severity of an impact (i.e. whether the impact has the ability to alter the functionality or quality of a system permanently or temporarily).		
1	Low	Impact affects the quality, use and integrity of the system/component in a way that is barely perceptible.
2	Medium	Impact alters the quality, use and integrity of the system/component but system/ component still continues to function in a moderately modified way and maintains general integrity (some impact on integrity).
3	High	Impact affects the continued viability of the system/component and the quality, use, integrity and functionality of the system or component is severely impaired and may temporarily cease. High costs of rehabilitation and remediation.
4	Very high	Impact affects the continued viability of the system/component and the quality, use, integrity and functionality of the system or component permanently ceases and is irreversibly impaired (system collapse). Rehabilitation and remediation often impossible. If possible rehabilitation and remediation often unfeasible due to extremely high costs of rehabilitation and remediation.
SIGNIFICANCE (S)		

Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. This describes the significance of the impact on the environmental parameter. The calculation of the significance of an impact uses the following formula:

Significance = (Extent + probability + reversibility + irreplaceability + duration) x magnitude/intensity.

The summation of the different criteria will produce a non-weighted value. By multiplying this value with the magnitude/intensity, the resultant value acquires a weighted characteristic which can be measured and assigned a significance rating.

Points	Impact Significance Rating	Description
5 to 23	Negative Low impact	The anticipated impact will have negligible negative effects and will require little to no mitigation.
5 to 23	Positive Low impact	The anticipated impact will have minor positive effects.
24 to 42	Negative Medium impact	The anticipated impact will have moderate negative effects and will require moderate mitigation measures.
24 to 42	Positive Medium impact	The anticipated impact will have moderate positive effects.
43 to 61	Negative High impact	The anticipated impact will have significant effects and will require significant mitigation measures to achieve an acceptable level of impact.
43 to 61	Positive High impact	The anticipated impact will have significant positive effects.
62 to 80	Negative Very high impact	The anticipated impact will have highly significant effects and are unlikely to be able to be mitigated adequately. These impacts could be considered fatal flaws .
62 to 80	Positive Very high impact	The anticipated impact will have highly significant positive effects.

The table below is to be represented in the Impact Assessment section of the report. The excel spreadsheet template can be used to complete the Impact Assessment.

Table 2: Rating of impacts template and example

ENVIRONMENTAL PARAMETER	ISSUE / IMPACT / ENVIRONMENTAL EFFECT/ NATURE	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION									RECOMMENDED MITIGATION MEASURES	ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION								
		E	P	R	L	D	I / M	TOTAL	STATUS (+ OR -)	S		E	P	R	L	D	I / M	TOTAL	STATUS (+ OR -)	S
Construction Phase																				
Vegetation and protected plant species	Vegetation clearing for access roads, turbines and their service areas and other infrastructure will impact on vegetation and protected plant species.	2	4	2	2	3	3	39	-	Medium	**Outline/explain the mitigation measures to be undertaken to ameliorate the impacts that are likely to arise from the proposed activity. These measures will be detailed in the EMPr.**	2	4	2	1	3	2	24	-	Low
Operational Phase																				

Fauna	Fauna will be negatively affected by the operation of the wind farm due to the human disturbance, the presence of vehicles on the site and possibly by noise generated by the wind turbines as well.	2	3	2	1	4	3	36	-	Medium	**Outline/explain the mitigation measures to be undertaken to ameliorate the impacts that are likely to arise from the proposed activity. These measures will be detailed in the EMPr.**	2	2	2	1	4	2	22	-	Low
Decommissioning Phase																				
Fauna	Fauna will be negatively affected by the decommissioning of the wind farm due to the human disturbance, the presence and operation of vehicles and heavy machinery on the site and the noise generated.	2	3	2	1	2	3	30	-	Medium	**Outline/explain the mitigation measures to be undertaken to ameliorate the impacts that are likely to arise from the proposed activity. These measures will be detailed in the EMPr.**	2	2	2	1	2	2	18	-	Low
Cumulative																				

Broad-scale ecological processes	Transformation and presence of the facility will contribute to cumulative habitat loss and impacts on broad-scale ecological processes such as fragmentation.	2	4	2	2	3	2	26	-	Medium	**Outline/explain the mitigation measures to be undertaken to ameliorate the impacts that are likely to arise from the proposed activity. These measures will be detailed in the EMPr.**	2	3	2	1	3	2	22	-	Low